

July 8, 1941.

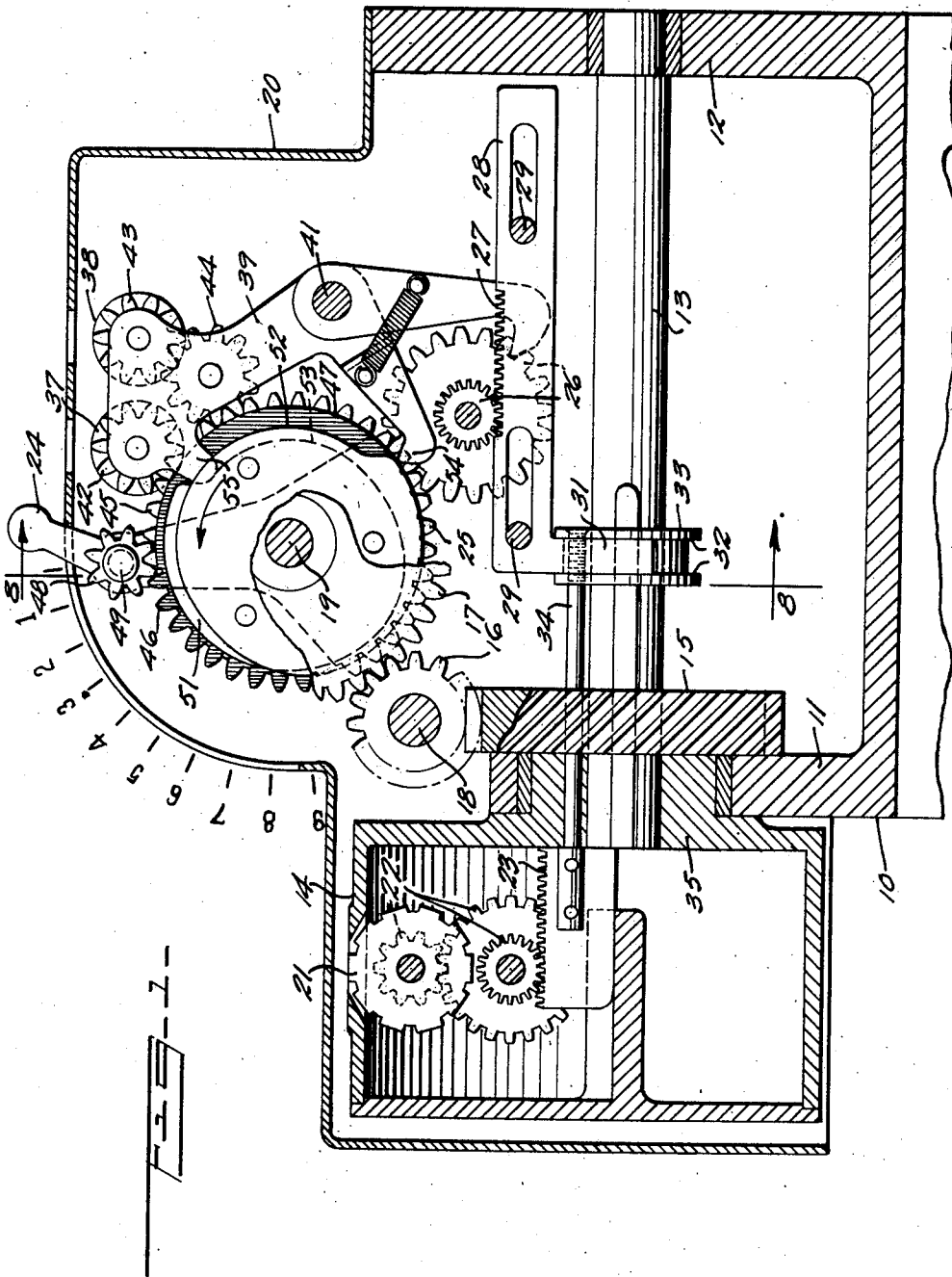
L. A. THATCHER

2,248,257

REGISTER ACTUATING DEVICE

Filed Sept. 29, 1939

4 Sheets-Sheet 1



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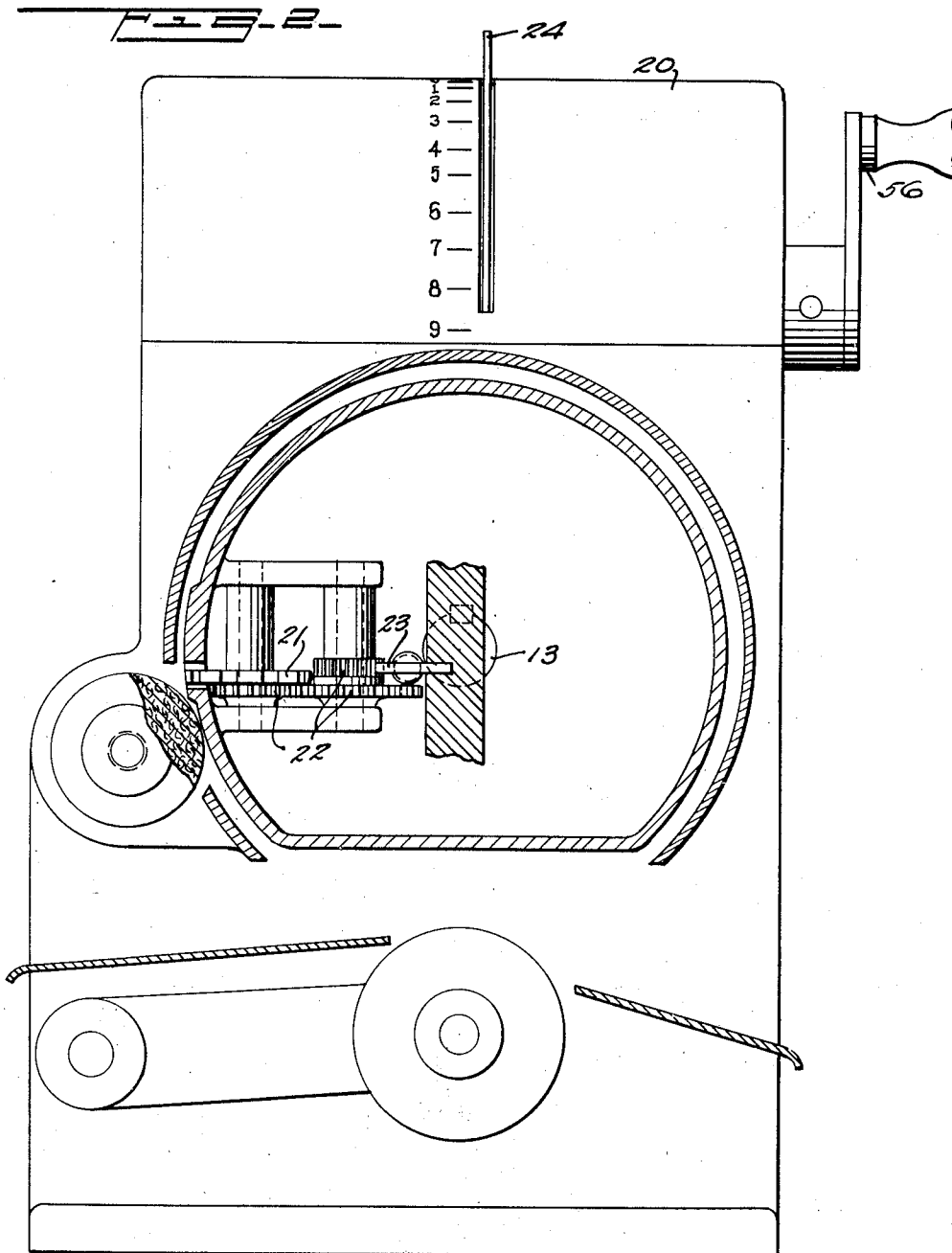
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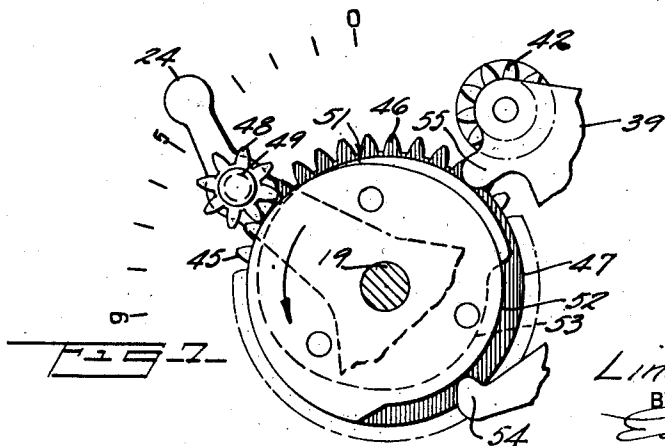
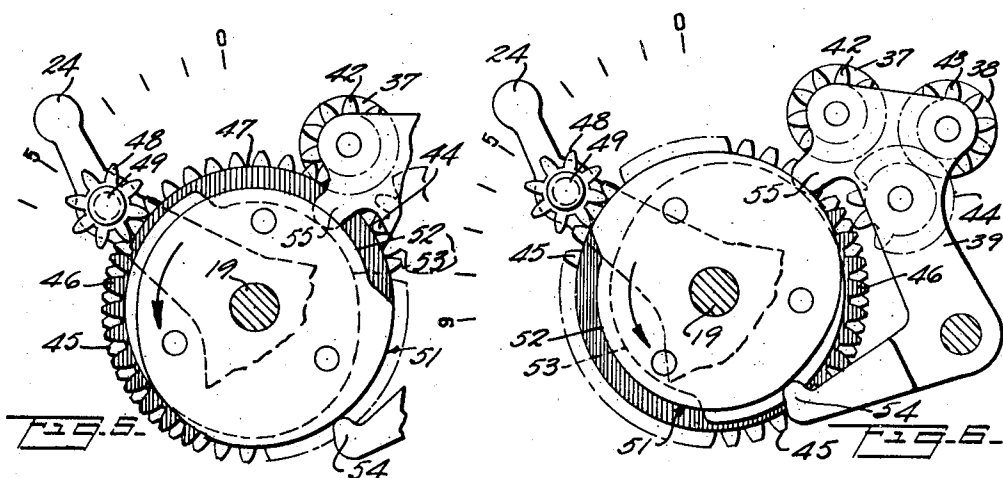
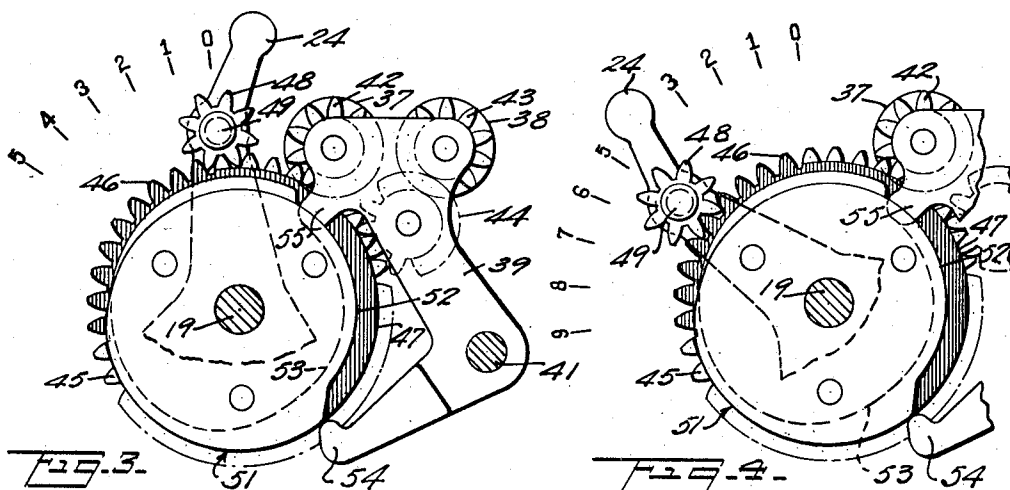
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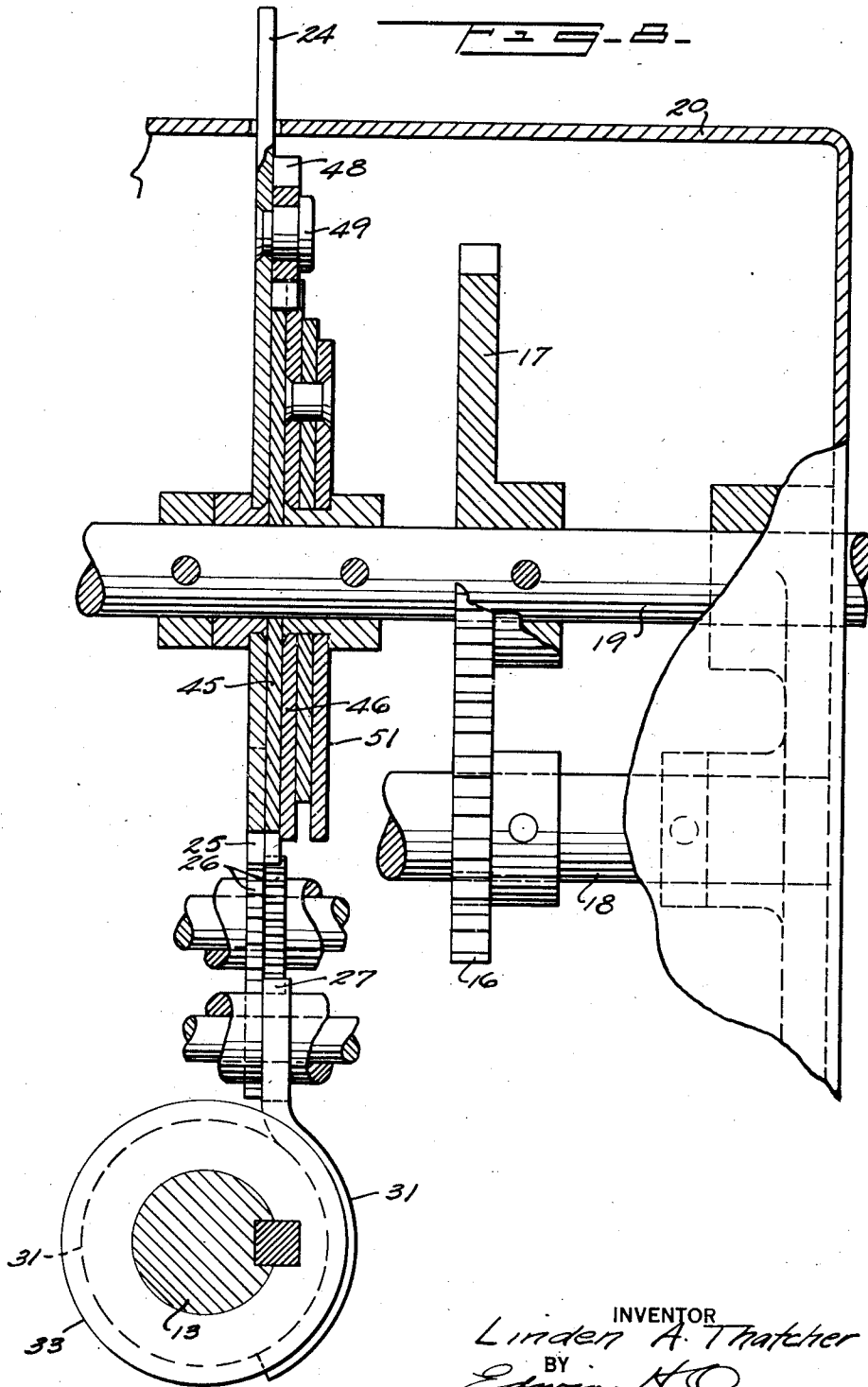
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4 Sheets-Sheet 4



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2,248,257

REGISTER ACTUATING DEVICE

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Application September 29, 1939, Serial No. 297,094

4 Claims. (Cl. 235—79)

This invention relates to a register actuating device for use with calculating machines and the like, and more particularly for use with a metering unit of a metered mail machine wherein a manually selected value is registered during a printing cycle of operation.

It is an object of this invention to provide through direct gearing, a novel means of control which will permit an unbroken connection to be maintained through the value selection means, register actuating means and register, when both manually selecting and registering a value.

It is a further object to provide an improved means for locking said gearing after the selected value has been set up in the register.

In general, the manual setting element, which controls the setting of a selected value for printing by the printing device, has a pinion member secured thereto which is adapted to mesh with both an actuator gear segment and a transmission gear, when a selected value is set up. The gear segment has the number of teeth necessary for operation of a register wheel from "0" through the "9" positions, and is adapted to have the pinion member moved thereacross, the number of teeth agreeing with the selected value. Then, when power is applied to rotate the segment through one revolution, the said pinion is driven until the last tooth of the segment clears the pinion teeth. Rotation of the pinion during the beginning of a power cycle, will effect the drive of the transmission gear, to thus effect a setting of the selected value in the register.

Upon the passing of the last tooth of the segment beyond the pinion, said pinion immediately becomes locked when two adjacent teeth thereof bear upon a cam edge portion of the segment member. This affords a positive locking control to prevent any overthrow of the register because the entire gearing is controlled thereby. The immediate locking of the gearing, further provides ample time for the withdrawal of the register unit from its drive position before the segment again approaches the pinion. Said withdrawal of the register is provided by means of cams which control the rocking of a register supporting member away from a meshed position.

In the following drawings, wherein a preferred embodiment of the invention is shown:

Fig. 1 is a longitudinal vertical sectional view through a metered mailing machine showing the register actuating mechanism and value printing mechanism;

Fig. 2 is a front elevation of the machine with part in section;

Figs. 3, 4, 5, 6 and 7 are detail elevational views of the register and registering actuating mechanism showing several successive operating positions; and

Fig. 8 is an enlarged sectional view through the register actuating unit taken along the line 8—8 of Fig. 1.

Referring to Fig. 1, a portion of a metered mailing machine is shown, which comprises a base 10, having end walls 11—12 carrying a shaft 13 and a printing cylinder 14. A drive for said shaft includes a gear 15, an intermediate gear 16 and a driving gear 17, the said intermediate gear being mounted upon a shaft 18 and the driving gear being mounted on a shaft 19. A casing 20 encloses the machine structure.

Within the printing cylinder is mounted a value printing wheel 21, which wheel is connected through suitable gearing 22 with a rack 23.

By means of a setting lever 24, a driving connection is made through a segmental gear portion 25 thereof with gearing 26 and rack 27. Said rack 27 is provided on a rack bar 28, which bar is slidably supported on pins 29—29 and has a downwardly disposed yoke portion 31 which is adapted to be engaged between the walls 32—32 of an annular grooved collar 33. Said collar 33 is slidably mounted upon the shaft 13 and is connected with the rack 23 by means of a connecting rod 34, which rod passes through suitable openings in the gear 15 and a hub portion 35 of the printing cylinder 14.

By means of said connections, any manipulation of the setting lever 24 will effect rotation of the gearing 26 and move the rack bar 28, collar 33 and rack 23, which in turn will set the type wheels 21 in accordance with the value set by said lever 24.

The register mechanism comprises a total register 37 and a subtracting register 38. Said registers 37 and 38 are suitably supported in a bracket 39, which bracket is pivotally mounted on a shaft 41. The units wheels of said registers 37 and 38 have pinions 42 and 43 associated therewith respectively and pinion 43 meshes with an idler pinion 44 also carried by the support 39. A transmission gear 45, freely mounted upon the drive shaft 19, is normally adapted to mesh with the pinion 42, of the total register wheel 37, and the idler pinion 44, which is associated with the subtracting register wheel 38.

Fixed to the drive shaft 19, and adjacent the gear 45, is an actuator gear segment 46, which has a circumferential cam edge portion 47 continuing along a radius to approximately the bottom of the segment tooth, which edge provides for a register choking operation to be hereafter described.

A pinion 48 is rotatably mounted upon a stud 49, carried by the setting lever 24, and it is of such width that it is adapted to span and mesh with both the gear 45 and segment 46 when said setting lever is moved to a selected value position. Fixed to said segment 46 is a cam struc-

ture 51, which is provided with two cam surfaces 52 and 53 the same being engageable by lugs 54 and 55, projecting from the bracket 39, to effect positive engagement and disengagement of the pinions 42 and 44, of the registering mechanism, with the gear 46 during a printing cycle of operation.

Referring now to Figs. 3 to 7, wherein the register actuating mechanism is shown in several of its positions, the position of the parts in Fig. 3 shows the normal home position. The segment 46, as previously stated, is fixed to the drive shaft 19, and during each printing cycle of operation, is rotated through one revolution. Said segment is shown in the drawings with its face shaded to distinguish same from the gear 45.

When setting a value by means of the setting lever 24, the said lever is moved to a position opposite the desired value, said values being indicated on the casing in any suitable manner. When the said lever 24 is moved, as shown in Fig. 4, to a selected value, which in this example is the value (5), the pinion 48 will have rotated over 5 teeth of the gear segment 46 and will remain engaged with the 5th tooth until a cycle of operation is started. The register pinions 42 and 44 are engaged with the gear 45 during this initial setting operation.

Upon rotating the drive shaft 19 in the direction indicated by the arrow, the said segment 46 will be rotated, and, owing to its engagement with the pinion 48, will cause the pinion to be rotated a distance equal to the number of teeth which were set up. Due to the pinion 48 being engaged with the teeth of the gear 45, the said gear 45 will also be rotated a distance agreeing with the value set, and further, will effect rotation of the register pinions 42 and 44 which are engaged therewith.

After the segment 46 passes the pinion 48, two of the teeth of said pinion 48 will engage the peripheral cam edge 47 of the gear segment and thereby lock said pinion against further rotation. Said locking action will prevent the gear 45 from rotating further and will thereby provide a choke for the registering pinions 42 and 44 to prevent overthrow of the registering elements. The pinion 48 will then continue to ride on the peripheral edge 47 until the teeth of the segment 46 approach the pinion, as indicated in the position shown in Fig. 7.

After the registering elements have been actuated they are moved to a disengaged position, as shown in Fig. 6, by the action of the cam surfaces 52 and 53 on the lugs 54 and 55 of the register supporting bracket 39. Therefore, when the teeth of the segment 46 pass the pinion 48, upon the return of the segment to its home position, Fig. 3, the rotation set up in the pinion and consequently the gear 45 will have no effect upon the pinions 42 and 44 of the registering elements. When the last tooth of the segment 46 clears the pinion 48, the register supporting bracket 39 will be returned to the normal position of Fig. 3, with the pinion members 42 and 44 again in engagement with the teeth of the gear 45.

Any suitable means may be provided to effect the drive of the shaft 19, as for example, by means of the manually operated handle 56, Fig. 2, or any power drive. The drive will function to rotate the shaft 19 through one complete revolution during each printing cycle of operation.

It will be understood that the invention may be embodied in other specific forms without de-

parting from the spirit thereof and it is therefore desired that the present embodiment be considered as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

What is claimed is:

1. In a register actuating device, an accumulator including a toothed wheel, a rotatable toothed actuator, a transmission gear normally engaging the toothed wheel, manually settable toothed means engaging both the transmission gear and actuator when setting a value, cyclically operable means to drive the actuator and thereby effect the immediate drive of the accumulator toothed wheel, and means to disengage the accumulator from the transmission gear at a predetermined point in the cycle of said drive means and after the set value has been registered in said accumulator.

2. In a register actuating device, an accumulator including a toothed wheel, a rotatable toothed actuator, a transmission gear normally engaging the toothed wheel, a manually settable pinion engaging the transmission gear and adapted to be moved along both the teeth of the transmission gear and actuator a number of teeth agreeing with a value to be registered, cyclically operable means to drive the actuator to effect the drive of the pinion and thereby drive the accumulator toothed wheel the number of teeth set up in the actuator, and means to disengage the accumulator from the transmission gear at a predetermined point in the cycle of said drive means and after the set value has been registered in said accumulator.

3. In a register actuating device, an accumulator including a toothed wheel, a freely rotatable transmission gear normally engaging said toothed wheel, a toothed segment adjacent the transmission gear and rotatable about the transmission gear axis, a pinion normally engaging the transmission gear and adapted to be moved along the segment teeth to set up a number of teeth thereon in accordance with a selected value, cyclically operable means to rotate said segment to effect rotation of the pinion in accordance with the number of teeth set up and thereby rotate the transmission gear and accumulator, and means to disengage the accumulator from the transmission gear at a predetermined point in the cycle of said drive means and after the last tooth of the segment has passed the pinion.

4. In a register actuating device, an accumulator including a toothed wheel, a transmission gear engaging said toothed wheel, a segment adjacent the transmission gear and having teeth thereon aligned with the teeth of the transmission gear, a manually settable member pivotal about the axis of the segment and transmission gear, a pinion on said settable member meshing with the teeth of the transmission gear and movable along both the teeth of the segment and transmission gear to effect the setting of a selected value, cyclically operable means to drive said segment in a direction in which the teeth thereon representing the selected value will drive the pinion, transmission gear and accumulator toothed wheel in accordance with the value set up, and means to disengage the accumulator from the transmission gear at a predetermined point in the cycle of said drive means and after the selected value has been registered in said accumulator.

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